ABSTRACT

EFFECT OF CHITOSAN CONCENTRATION ON RELEASE RATE OF ANDROGRAPHOLIDE-CHITOSAN MICROPARTICLES (Prepared by ionic gelation methods – freeze drying)

Wafiqoh Amirah

Andrographolide has low solubility and short half life ($t_{1/2}$ = 1,5-2 hours). Therefore andrographolide has a low bioavailability. Andrographolide-chitosan microparticles was expected to improve dissolution and further could increase bioavailability of andrographolide. The objective of this research was to investigate the effect of chitosan concentration on infrared spectrum and in vitro release of andrographolide from microparticles. Microparticles were prepared by ionic gelation and used sodium tripolyphosphate (TPP) as cross linker and dried by freeze drying method. The chitosan concentration that used in this research were 0,5% (L0,5), 0,625% (L0,75) and 0,75% (L0,75). Infrared spectrum of microparticles shows that there was ionic bonding between chitosan and TPP.

The model of release kinetics suitable for andrographolide-chitosan microparticles system was The Higuchi model. Release rate of microparticles in phosphate buffer pH 7 ± 0,05 are higher than andrographolide as control. It show that andrographolide-chitosan microparticles are able to enhance dissolution rate of andrographolide.

Keywords : andrographolide, chitosan, microparticle, freeze drying, ionic gelation